IN THE DRAWINGS:

Figures 1 and 2 have been amended as shown on the drawing copies attached hereto.

REMARKS

In the Office Action dated April 13, 2006, the drawings were objected to because of informalities concerning the handwritten lettering, indicated on Form PTO-948 that was attached to the Office Action. In response, drawings with non-handwritten lettering are submitted herewith. These drawings are submitted to be in full compliance with all provisions of 37 C.F.R.§ 1.84.

Additionally, the disclosure was objected to because the Examiner stated some of the titles used in the specification are misspelled. Applicants have carefully reviewed the entirety of the specification, including the titles therein, but do not find any misspellings in the titles. If the Examiner can indicate a title that the Examiner believes is misspelled, Applicant will be glad to make an appropriate correction.

Claims 1-6 were rejected under 35 U.S.C. §103(a) as obvious over Zarychta in view of Lurie et al. The Examiner stated the Zarychta reference discloses an esophageal electrode and a signal analyzer connected thereto, that analyzes an EMG signal obtained via the esophageal electrode. The Examiner stated the Zarychta reference further discloses that the EMG signals can be used to control the application of electrical stimulation to the upper airway muscles and/or nerves in order to treat obstructive sleep apnea. The Examiner acknowledged that the Zarychta reference does not teach stimulating the phrenic nerve, but the Examiner relied on the Lurie et al. reference as disclosing a pulse generator that can be used to supply electrical current or a magnetic field that stimulates the phrenic nerve. The Examiner stated that it would have been obvious to a person of ordinary skill in the art to modify the esophageal electrode disclosed in the Zarychta reference with the

phrenic nerve stimulating electrodes disclosed in the Lurie et al. reference, in order to treat a respiratory condition by causing the diaphragm to contract.

This rejection is respectfully traversed for the following reasons.

As generally stated at page 3, the purpose for regulating the stimulation signal that is supplied to the phrenic nerve is to establish an optimal form of the stimulation signal. This is determined by analyzing the myo-electrical signal that is obtained via the esophageal electrode and to vary the energy content of the stimulation pulse to achieve a desired breathing effect. The energy content can be varied by variations of the pulse duration, amplitude, etc., i.e., varying the shape of the stimulation pulse. This is disclosed in the specification as originally filed at page 6, in the paragraph beginning at line 7.

Independent claim 1 therefore has been amended to specifically state that at least one of the energy content or the shape of the stimulation pulses is varied dependent on the myo-electrical signal that is filtered out of the measurement signals obtained the esophageal electrode.

In the Lurie et al. reference, as noted by the Examiner, the stimulation of the phrenic nerve is for the purpose of producing a contraction of the diaphragm in order to augment a manually-produced compression during cardiopulmonary resuscitation of a subject. Therefore, the most that can be said of the Lurie et al. reference is that it provides a general suggestion to regulate or set the *timing* of the delivery of a stimulation of the phrenic nerve, but there is no disclosure whatsoever in the Lurie et al. reference regarding regulation of the type of stimulation pulse itself that is supplied. in fact, there is no structure or circuitry disclosed in the Lurie et al.

reference that would permit varying the energy content and/or the shape of the phrenic nerve stimulation pulse.

Claim 1, therefore, would not have been obvious to a person of ordinary skill in the field of designing nerve stimulation devices based on the teachings of Zarychta and Lurie et al., under the provisions of 35 U.S.C. §103(a). Claims 2-6 add further structure to the non-obvious combination of claim 1, and therefore would not have been obvious to a person of ordinary skill in the relevant art for the same reasons discussed above in connection with claim 1.

As also discussed in the present specification, such as at page 3, in the paragraph beginning at line 15, signals indicative of heart activity can be filtered from the measurement signal, so that effects on the heart, by the stimulation of the phrenic nerve, can be avoided. As discussed in the paragraph beginning at page 6, line 18, stimulation of the phrenic nerve can have an unwanted effect on heart activity, because the phrenic nerve is close in the body to the vagus nerve, and stimulation of the vagus nerve leads to a slowing of heart activity (bradycardia). In accordance with the present invention, it is therefore also possible to detect a signal that is indicative of the degree of stimulation of the vagus nerve, and to regulate the stimulation pulses so that the degree of the stimulation of the vagus nerve is reduced. New independent claim 7 claims such a device. Since cardiac activity is an indication of the degree of stimulation of the vagus nerve, and since monitoring cardiac activity is clearly disclosed in the present specification, the subject matter of claim 7 is enabled by the disclosure as originally filed. Claims 8 and 9 set forth details wherein the degree of stimulation of the vagus nerve is determined either by

directly measuring an ECG signal, or by filtering the ECG signal out of the measurement signal obtained via the esophageal electrode.

No mention of avoiding detrimental effects as to cardiac activity, arising as unintended consequences of stimulating the phrenic nerve, is discussed in either the Zarychta or Lurie et al. references, and therefore neither of those references discloses or suggests a solution to that problem.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

Submitted by,

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